REMARKS

This amendment is filed along with a currently filed RCE in connection with Applicant's notice of appeal filed on July 8, 2008 related to the Final Office Action mailed on January 8, 2008. Claims 1 and 3 have been amended based on the original specification. No new matter has been added. Reconsideration and allowance of the amended application are respectfully requested.

Claims 1-3 stand finally rejected under 35 USC 103(a) over McFarland in view of Mann in view of Sandstrom an further in view of Weinberg. These claims, however, are distinctly patentable over the cited prior art.

With respect to Claim 1, the cited McFarland, Mann, Sandstrom and Weinberg are in very different technical fields and the Patent Office fails to make a prima facie showing of obviousness by showing how different teachings in these different references can be technically combined as an operable combination that discloses each feature in Claim 1.

The cited McFarland discloses details how to use FIG. 14 to characterize the relative radiance, luminance, and chromaticity of an array of materials by illumination of light from the excitation source 1403. DFWM is briefly mentioned but no specific teaching of DFWM for detecting an array of DNA cells is provided. The cited Mann discloses DFWM and laser-induced fluorescence in a gas cell filled with NO2 and a buffer gas but fails to disclose the specific use of DFWM in detecting an array of DNA cells. The cited Sandstrom and Weinberg also fail to provide any specific teachings how DFWM be used to in detecting an array of DNA cells. As such, the combination of the cited McFarland, Mann, Sandstrom and Weinberg as suggested in the Final Office Acton is a collection of technical features that are scattered around in different references without any

teaching on the specific features as recited in Claim 1. As such, the rejection under 35 USC 103 is improper.

For example, the combined teaching of the cited McFarland, Mann, Sandstrom and Weinberg fails to disclose the following aspects in Claim 1 as presented in this filing: placing a single template located between the microarray and an optical detector to include holes arranged to selectively transmit the DFWM signal from the microarray to the optical detector and to block pump light and probe light in the DFWM system from entering the optical detector; measuring an output of the optical detector to represent the DFWM signal; removing a background noise in the measured DFWM signal of the one DNA cell by using a DFWM measurement of a blank area between the one DNA cell and an adjacent DNA cell; and scanning a position of the microarray to place other DNA cells of the microarray in the DFWM system to get respective DFWM signals.

More specifically, nothing in the cited McFarland, Mann, Sandstrom and Weinberg suggests "removing a background noise in the measured DFWM signal of the one DNA cell by using a DFWM measurement of a blank area between the one DNA cell and an adjacent DNA cell" in Claim 1. In this regard in addressing patentability of Claim 2, the Patent Office cites Paragraph [0019] in the cited Sandstorm as quoted below:

> The system may also comprise computer components for receiving, processing, storing, transmitting, and displaying information received from the detector. For example, a computer processor may be used to receive and interpret information received from the detector. Such information may be manipulated in any number of ways. For example, processed data may comprise data obtained from a first location of the microarray mathematically transformed with data obtained from a second location of the microarray. Such processing finds use, for example, to compare results from two or more known locations on the microarray such as two different experimental sites or an experimental site and one or more control sites. Such information may include complex comparisons of multiple

> reactions sites on the microarray. The processed information may be provided as a single quantitative "result" which minimizes the amount of informative data that needs to be stored and analyzed. Similarly, in still other preferred embodiments, the spatial light modulator and the computer components are associated such that the system is capable of accessing any probe site in the array. Enhanced signal to noise ratios are contemplated in this method of operation. Moreover, this method of operation allows a number of comparisons between probe sites or sets of probe sites to be quickly drawn. For example, this embodiment allows for analysis, including but not limited to: a) simple fluorescence read of a particular probe site (no comparing); b) comparisons of a probe site and a reference (i.e., a blank or non-hybridizable site [eliminates background fluorescence and residual excitation light]); c) comparison of a probe site and a purposefully mismatched site (i.e., eliminates background fluorescence, residual excitation light and signal from nonspecific hybridization); d) comparison of a group of identical probe sites with an equal number of reference sites (i.e., enhances the signal to noise ratio, allows for averages of hybridization across many probes sites); e) comparison of a group of identical probe sites with an equal number of identically mismatched sites; f) comparison of a group of identical probe sites with an equal number of differently mismatched sites; g) comparison of a set of characteristic probe sites with an equal number of reference probe sites; h) comparison of a set of characteristic probe sites with an equal number of probe sites with different characteristics (i.e., useful in clinical diagnostics or expression studies); and i) combinations of the above mentioned comparisons, and other comparisons described herein. In some embodiments of the present invention, the system further comprises a computer memory capable of storing processed data received from the processor.

Here, the cited Sandstorm describes using “sites” of an array as the “banks” or “reference sites” and these sites are clearly the array element sites of the array. See, e.g., the probe sites and reference sites as shown in FIG. 6.

Notably, the Final Office Action and the Advisory Action fail to show how the cited Sandstorm discloses “removing a background noise in the measured DFWM signal of the one DNA cell by using a DFWM measurement of a blank area between the one DNA cell and an adjacent DNA cell” in Claim 1. The recited “blank

area between the one DNA cell and an adjacent DNA cell" in Claim 1 is very different from a "reference site" of an array disclosed in the cited Sandstorm in part because recited "blank area between the one DNA cell and an adjacent DNA cell" in Claim 1 does not occupy a full site of an DNA cell of the array and this operation is possible in part because the specific way that the DFWM is implemented in the microarray of DNA cells as provided in Claim 1: placing a single template located between the microarray and an optical detector to include holes arranged to selectively transmit the DFWM signal from the microarray to the optical detector and to block pump light and probe light in the DFWM system from entering the optical detector; and measuring an output of the optical detector to represent the DFWM signal. The high spatial resolution of the DFWM in detecting microarray of DNA cells is achieved at such a level to allow for detecting a blank area between two adjacent DNA cells is a feature that is completely missing in any cited portions of the cited McFarland, Mann, Sandstrom and Weinberg.

Therefore, Claim 1 is patentable under 35 USC 103.

Turning to Claim 2, based on the above discussion with respect to Claim 1, the combined teaching of the cited McFarland, Mann, Sandstrom and Weinberg fails to disclose "scanning the blank area through the DFWM system to measure a signal; and using the measured signal in the blank area to determine a level of hybridization and washing in preparing the DNA cells and background optical noise" in Claim 2.

Claim 3 recites "scanning the position of the microarray to place different locations within a DNA cell in the DFWM system to obtain different DFWM signals from the DNA cell; and using the different DFWM signals from the DNA cell to determine spatial inhomogeniety within the DNA cell." The paragraphs 0048, 0086-0088 in the cited McFarland fail to disclose any

information related to DFWM detection of different spatial parts within one cell. Notably, nothing in the cited McFarland suggests "scanning the position of the microarray to place different locations within a DNA cell in the DFWM system to obtain different DFWM signals from the DNA cell." Other references in the contended combination also fail to provide such teaching.

Therefore, the rejection to Claim 3 must be withdrawn.

Claims 5-7 and 17-22 are patentable based on the above arguments.

The foregoing comments made with respect to the positions taken by the Examiner are not to be construed as acquiescence with other positions of the Examiner that have not been explicitly contested. Accordingly, the above arguments for patentability of a claim should not be construed as implying that there are not other valid reasons for patentability of that claim or other claims.

A Request for Continued Examination is concurrently filed with this response within the time period for filing the appeal brief to the Board of Patent Appeals and Interferences. This RCE filing is made in order for the Patent Office to fully consider the amended claims and the arguments presented herein.

This response is filed timely with an extension of time. Please apply a fee for the extension of time and any credits or additional charges to deposit account 06-1050.

Respectfully submitted,

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